IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants:	Yu DENG et al.	§	Confirmation No.:	5355
Serial No.:	10/797,266	§	Group Art Unit:	2165
Filed:	03/10/2004	§	Examiner:	T. Ponikiewski
For:	Metadata-Related Mappings In A System	§	Docket No.:	200314604-1

APPEAL BRIEF

Mail Stop Appeal Brief – Patents
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Date: June 3, 2008

Sir:

Appellants hereby submit this Appeal Brief in connection with the above-identified application. A Notice of Appeal was electronically filed on April 3, 2008.

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I. REAL PARTY IN INTEREST

The real party in interest is Hewlett-Packard Development Company, L.P. (HPDC), a Texas Limited Partnership, having its principal place of business in Houston, Texas. HPDC is a wholly owned affiliate of Hewlett-Packard Company (HPC). The Assignment from the inventors to HPDC was recorded on March 10, 2004, at Reel/Frame 015081/0451.

II. RELATED APPEALS AND INTERFERENCES

Appellants are unaware of any related appeals or interferences.

III. STATUS OF THE CLAIMS

Originally filed claims:	1-25.
Claim cancellations:	None.
Withdrawn claims:	1-10 and 21-25
Added claims:	None.
Presently pending claims:	11-20.
Presently appealed claims:	11-20.

IV. STATUS OF THE AMENDMENTS

No claims were amended after the Office action dated January 3, 2008.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

The following provides a concise explanation of the subject matter defined in each of the independent claims involved in the appeal, referring to the specification by page and line number and to the drawings by reference characters as examples of support for claim elements, as required by 37 C.F.R. § 41.37(c)(1)(v). Each element of the claims is identified by a corresponding reference to the specification and drawings where applicable. Note that the citation to passages in the specification and drawings for each claim element does not imply that the limitations from the specification and drawings should be read into the corresponding claims.

Appellants' disclosure describes a metadata system that permits algebraic and functional relationships to be established between resources using "virtual properties." Virtual properties are functional mappings that possess derived values rather than stored values. Each function may relate to one or more parameters defined by other resources.[1] Appellants' contribution involves setting up and maintaining a virtual property and its associated function, calculating and retrieving values for the function, mapping dependency chains to enable instantiation of the function, and maintaining the mapping should any changes to the dependency chains or ontologies occur.[2]

The term "functional relationship," as used in Appellants' claims, relates to values that are derived functionally rather than values that are simply stored[3] (see Appellants' specification, paragraph [0024], lines 3-5). As an example, paragraph [0024] of Appellants' specification refers to calculating a "total cost" based on a function.

The invention of claim 11 is directed to a method performed by at least one processor (106, 108 of Figure 1). The method comprises generating a node (206 of Figures 3, 4 and 5A) to represent a functional relationship between one or

[1] See at least Figure 3 and lines 1-14 of paragraph [0024], page 5.

[2] See at least Figure 10 and lines 1-14 of paragraph [0043], page 11.

[3] See at least lines 3-5 of paragraph [0024], page 5.

more objects of distinct ontologies in a metadata system.[4] The method further comprises associating an expression of the functional relationship to the node (206) and associating one or more parameters (208, 210 of Figures 3 and 4) of the functional relationship to the node.[5]

The invention of claim 18 is directed to a computer readable medium (110 of Figure 1) storing a program executable by a processor (see 106, 108 of Figure 1), the program causes the processor to generate a node (206 of Figures 3, 4 and 5A) to represent a functional relationship between one or more objects of distinct ontologies in a metadata system.[6] The program also causes the processor (106) to link to the node an expression of the functional relationship and to link one or more parameters (208, 210 of Figures 3 and 4) of the functional relationship to the node.[7]

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[4] See at least lines 2-4 of paragraph [0022], page 4 and lines 1-14 of paragraph [0024], page 5.

[5] See at least Figures 6 and 9; lines 1-10 of paragraph [0026], pages 5-6; lines 1-8 of paragraph [0027], page 6; and lines 1-9 of paragraph [0028], page 6.

[6] See at least lines 2-4 of paragraph [0022], page 4 and lines 1-14 of paragraph [0024], page 5.

[7] See at least Figures 6 and 9; lines 1-10 of paragraph [0026], pages 5-6; lines 1-8 of paragraph [0027], page 6; and lines 1-9 of paragraph [0028], page 6.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether Appellants' specification provides proper support or antecedent bases for the term "computer readable medium" in claims 18-20.

Whether claims 11-12, 15 and 17-19 are unpatentable under 35 U.S.C. § 103(a) over U.S. Pat. No. 6,549,943 ("*Spring*") in view of U.S. Pat. Pub. No. 2003/0233365 A1 ("*Schmit*").

Whether claims 13-14 and 20 are unpatentable under 35 U.S.C. § 103(a) over *Spring* in view of *Schmit* and U.S. Pat. Pub. No. 2002/0156788 A1 ("*Heh*").

Whether claim 16 is unpatentable under 35 U.S.C. § 103(a) over *Spring* in view of *Schmit*, *Heh* and U.S. Pat. No. 5,961,599 ("*Kalavade*").

VII. ARGUMENT

A. Support for "computer readable medium"

The Examiner objected to Appellants' specification as failing to provide proper antecedent bases for the term "computer readable medium" in claims 18-20. See Office Action dated 01/03/08, page 2, last paragraph. The term "computer readable medium" was used for claims 18-20 as originally filed and thus the issue is whether the specification and drawings are defective and not whether the term "computer readable medium" is new matter. See MPEP § 608.01(l). As described in MPEP § 608.01(o), the meaning of claim terms should be ascertainable by reference to the specification. Appellants submit that the meaning of the term "computer readable medium" is ascertainable at least based on the memories 110 and 112 shown in Figure 1 and described in paragraphs [0016]-[0018]. The term "computer readable medium" commonly refers to such memories. Based on the foregoing, Appellants respectfully request that the objection to Appellants' specification be reversed.

B. § 103 Rejections

"Any rejection under 35 U.S.C. § 103 must clearly and explicitly articulate the reason(s) why the claimed invention would have been obvious." MPEP § 2142. The framework for determining obviousness under 35 U.S.C. § 103 requires (1) determination of the scope and content of the prior art; (2) assessment of the differences between the claimed invention and the prior art; and (3) assessment of the level of ordinary skill in the pertinent art. *MPEP* § 2141 (citing *KSR International Co. v. Teleflex Inc.*, 127 S. Ct. 1727 (2007)). Differences between the claim limitations and the prior art weighs in favor of non-obviousness. To establish obviousness, each of the claim limitations must be taught or suggested by the prior art. See *CFMT, Inc. v. YieldUp Int'l Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003). Appellants traverse the Examiner's obviousness rejections for the reasons set forth below.

1. Claims 11-12, 15 and 17-19

Claims 11-12, 15 and 17-19 were rejected as being unpatentable over *Spring* in view of *Schmit*. Claim 11 recites "generating a node to represent a

functional relationship between one or more objects of distinct ontologies in a metadata system," "associating an expression of the functional relationship to the node" and "associating one or more parameters of the functional relationship to the node." The Examiner recognizes that *Spring* does not teach distinct ontologies in a metadata system and cites *Schmit* to support the rejection. See Final Office Action dated 01/03/08, page 3, item 4. While *Schmit* does mention gathering metadata from various sources (see lines 32-33 of paragraph [0037], page 3), neither *Spring* nor *Schmit* teaches or suggests the type of metadata recited in claim 11. In other words, neither *Spring* nor *Schmit* teaches or suggests a metadata expression of a functional relationship having parameters as in claim 11. Applicants' *Spring* does not even mention metadata and only generically describes a programming language expression (see col. 7, lines 57-59). *Schmit* describes a life sciences metadata system that obtains metadata, maps the metadata to a metamodel, integrates mapped metadata into functional views, stored the integrated metadata, retrieves the stored metadata, and uses the retrieved metadata (see at least claim 1 and paragraph [0035]). In other words, *Schmit* receives metadata information (*e.g.,* genome information or drug research information) from various sources and organizes the information for use by an application.

However, *Schmit's* use of the phrase "mapping metadata to a metamodel" does not require that the mapping (*i.e.,* the functional relationship between the metadata and the metamodel) be expressed as metadata. Similarly, *Schmit's* use of the phrase "integrating mapped metadata into functional views" does not require that the functional view be a metadata expression of a functional relationship having parameters as in claim 11. *Schmit* only describes the functional views as something supplied to an application to help the application identify new drugs and to rapidly test hypotheses (see at least paragraph [0035]). There is no evidence that *Schmit's* functional views are metadata expressions of functional relationships having parameters as in claim 11.

Further, because *Spring* does not appear to rely on metadata, the Examiner has not clearly articulated the reasons why it would have been obvious

to combine *Spring* and *Schmit* as is required. In other words, it would not be obvious to combine *Spring* with *Schmit's* metadata system as suggested by the Examiner because *Spring* does not use metadata. Based on the foregoing, Appellants respectfully request that the rejection of claim 11 and its dependent claims be reversed and the claims be issued.

Claim 18 is directed to a computer readable medium storing a program that causes a processor to "generate a node to represent a functional relationship between one or more objects of distinct ontologies in a metadata system," "link to the node an expression of the functional relationship" and "link one or more parameters of the functional relationship to the node." For much the same reasons as given previously with respect to claim 11, *Spring* and *Schmit* do not teach or suggest these limitations. Based on the foregoing, Appellants respectfully request that the rejection of claim 18 and its dependent claims be reversed and the claims be issued.

Claims 12 and 19 depend from claims 11 and 18 respectively and are allowable for the same reasons. In addition, claims 12 and 19 require "a dependency chain representing the dependent relationships between properties of a parameter path." To support the rejection the Examiner cites *Spring* at col. 7, lines 60-62, as teaching these limitations. See Final Office Action dated 01/03/08, page 4, second paragraph. However, *Spring* does not teach a dependency chain between properties of a parameter path as in claims 12 and 19. Instead, *Spring* is simply directed to discovering a network configuration (*e.g.,* parent-child relationships) based on executing a function 410. Further, *Spring's* network discovery technique is not even part of a metadata system as are Appellants' claimed dependency chains. For at least these additional reasons, Appellants respectfully request that the rejection of claims 12 and 19 be reversed and the claims be issued.

Claim 15 depends from claim 11 and is allowable for the same reasons. In addition, claim 15 requires "identifying mappings between dependency chains spanning the distinct ontologies." The Examiner argues that *Schmit* teaches the above limitation. See Final Office Action dated 01/03/08, page 4, paragraphs 3-5.

However, *Schmit* fails to teach or suggest "mappings between dependency chains" as in claim 15. Appellants' claimed mappings between dependency chains are related to dynamic parameter values in a functional relationship between metadata objects. In contrast, *Schmit* only discusses "mapping metadata" to describe assigning metadata to a given metamodel (*e.g.,* an industry standard specification for life sciences as in *Schmit's* claim 2) without regard to dynamic parameter values in a functional relationship between metadata objects. For at least these additional reasons, Appellants respectfully request that the rejection of claim 15 be reversed and the claims be issued.

Claim 17 depends from claim 11 and is allowable for the same reasons. In addition, claim 17 requires "maintaining the mappings that span the distinct ontologies when one of the distinct ontologies is modified." To support the rejection of claim 17 the Examiner relies on *Schmit*. See Final Office Action dated 01/03/08, page 5, paragraphs 1-3. However, *Schmit* simply describes various metadata sources without teaching maintaining a dependency chain mapping when an ontology is modified as in claim 17. For at least these additional reasons, Appellants respectfully request that the rejection of claim 17 be reversed and the claims be issued.

2. Claims 13-14 and 20

Claims 13-14 and 20 were rejected as being unpatentable over *Spring* in view of *Schmit* and *Heh*. Claim 13 depends from claim 11 and is allowable for the same reasons. In addition, claim 13 requires that "associating one or more parameters comprises generating a resource that aggregates a local name, type, and dependency chain." The Examiner recognizes that the combination of *Spring* and *Schmit* does not teach the above limitation and supports the rejection of claim 13 based on *Heh's* Abstract, lines 4-7. See Final Office Action, item 5, pages 5-6. However, *Heh* does not mention dependencies chains as in claim 13. Further, *Heh*'s system does not involve parameters of a functional relationship between metadata objects as in claim 13. The Examiner has not addressed these deficiencies and thus has not clearly articulated the reasons why claim 13 would have been obvious. For at least these additional reasons, Appellants

respectfully request that the rejection of claim 13 be reversed and the claims be issued.

Claim 14 depends from claim 11 and is allowable for the same reasons. In addition, claim 14 requires that "associating one or more parameters comprises generating a resource that aggregates a type and a dependency chain and that is associated to a name through an explicit mapping." The Examiner recognizes that the combination of *Spring* and *Schmit* does not teach the above limitation and supports the rejection of claim 14 based on *Heh's* paragraph [0008], page 1. See Final Office Action, page 6, paragraphs 3-5. However, *Heh* does not mention dependencies chains as in claim 14. Further, *Heh*'s system does not involve parameters of a functional relationship between metadata objects as in claim 14. The Examiner has not addressed these deficiencies and thus has not clearly articulated the reasons why claim 14 would have been obvious. For at least these additional reasons, Appellants respectfully request that the rejection of claim 14 be reversed and the claims be issued.

Claim 20 depends from claim 18 and is allowable for the same reasons. For much the same reasons as given for claim 13, the cited references do not teach a program that causes a processor "to connect one or more parameters comprising generating a blank node that aggregates a local name, type, and dependency chain" as in claim 20. For at least these additional reasons, Appellants respectfully request that the rejection of claim 20 be reversed and the claims be issued.

3. Claim 16

Claim 16 was rejected as being unpatentable over *Spring* in view of *Schmit*, *Heh* and *Kalavade*. Claim 16 depends from claim 11 and is allowable for the same reasons. In addition, claim 16 requires "identifying further comprises utilizing heuristics to suggest alternative mappings between dependency chains." The Examiner recognizes that the combination of *Spring*, *Schmit* and *Heh* does not teach the above limitation and supports the rejection of claim 16 based on *Kalavade*, col. 11, lines 55-59. See Final Office Action, item 6, pages 7-8. However, *Kalavade's* heuristics are for obtaining a default mapping of nodes to

resources and not for suggest alternative mappings between dependency chains as in claim 16. The Examiner has not addressed these deficiencies and thus has not clearly articulated the reasons why claim 16 would have been obvious. For at least these additional reasons, Appellants respectfully request that the rejection of claim 16 be reversed and the claims be issued.

C. Conclusion

For the reasons stated above, Appellants respectfully submit that the Examiner erred in rejecting all pending claims. It is believed that no extensions of time or fees are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required (including fees for net addition of claims) are hereby authorized to be charged to Hewlett-Packard Development Company's Deposit Account No. 08-2025.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

1.-10. (Withdrawn).

11. (Previously presented) A method performed by at least one processor, the method comprising:

generating a node to represent a functional relationship between one or more objects of distinct ontologies in a metadata system;

associating an expression of the functional relationship to the node; and

associating one or more parameters of the functional relationship to the node.

12. (Original) The method of claim 11 further comprising associating a dependency chain representing the dependent relationships between properties of a parameter path associated with the one or more parameters of the functional relationship.

13. (Original) The method of claim 11 wherein associating one or more parameters comprises generating a resource that aggregates a local name, type, and dependency chain.

14. (Original) The method of claim 11 wherein associating one or more parameters comprises generating a resource that aggregates a type and a dependency chain and that is associated to a name through an explicit mapping.

15. (Original) The method of claim 11 further comprising identifying mappings between dependency chains spanning the distinct ontologies.

16. (Previously presented) The method from claim 15 wherein the identifying further comprises utilizing heuristics to suggest alternative mappings between dependency chains.

17. (Original) The method of claim 15 further comprising maintaining the mappings that span the distinct ontologies when one of the distinct ontologies is modified.

18. (Previously presented) A computer readable medium storing a program executable by a processor, the program causes the processor to:

generate a node to represent a functional relationship between one or more objects of distinct ontologies in a metadata system;

link to the node an expression of the functional relationship; and

link one or more parameters of the functional relationship to the node.

19. (Original) The computer readable medium of claim 18 wherein the program further causes the processor to connect a dependency chain representing the dependent relationships between properties of a parameter path.

20. (Original) The computer readable medium of claim 18 wherein the program further causes the processor to connect one or more parameters comprising generating a blank node that aggregates a local name, type, and dependency chain.

21.-25. (Withdrawn).

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.